



*R. Michael Glover
H. B. Robinson Steam
Electric Plant Unit 2
Site Vice President*

*Duke Energy Progress, LLC
3581 West Entrance Road
Hartsville, SC 29550*

*O 843 857 1704
F 843 857 1319*

Mike.Glover@duke-energy.com

Serial: RNP-RA/16-0086

10 CFR 50.73

OCT 21 2016

ATTN: Document Control Desk
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/RENEWED LICENSE NO. DPR-23

**LICENSEE EVENT REPORT NO. 2016-004-00:
REACTOR TRIP DURING THE PERFORMANCE OF
A VISUAL INSPECTION OF THE MAIN TURBINE TRIP BLOCK**

Ladies and Gentlemen:

Pursuant to 10 CFR 50.73, Duke Energy Progress, LLC, is submitting the enclosed Licensee Event Report. There are no outstanding corrective actions required to restore compliance with NRC requirements; restoration of compliance has been met. Should you have any questions regarding this matter, please contact Mr. Tony Pilo, Manager – Nuclear Regulatory Affairs at (843) 857-1409.

There are no regulatory commitments made in this submittal.

Sincerely,

R. Michael Glover
Site Vice President

RMG/am

Enclosure: REACTOR TRIP DURING THE PERFORMANCE OF
A VISUAL INSPECTION OF THE MAIN TURBINE TRIP BLOCK

cc: NRC Resident Inspector, HBRSEP Unit No. 2
NRC Regional Administrator, NRC, Region II
Dennis Galvin, NRC Project Manager, NRR

United States Nuclear Regulatory Commission
Enclosure to Serial: RNP-RA/16-0086
4 Pages (including cover page)

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

**REACTOR TRIP DURING THE PERFORMANCE OF
A VISUAL INSPECTION OF THE MAIN TURBINE TRIP BLOCK**

**LICENSEE EVENT REPORT (LER)**

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollections.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

H. B. Robinson Steam Electric Plant, Unit No. 2

2. DOCKET NUMBER

05000 261

3. PAGE

1 OF 3

4. TITLE

Reactor Trip During The Performance of a Visual Inspection of The Main Turbine Trip Block

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
08	24	2016	2016	004	00	10	24	2016	FACILITY NAME	DOCKET NUMBER
										05000
										05000
9. OPERATING MODE										
11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)										
1			<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)		<input type="checkbox"/> 50.73(a)(2)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(viii)(A)		
			<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(ii)(B)		<input type="checkbox"/> 50.73(a)(2)(viii)(B)		
			<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)		<input type="checkbox"/> 50.73(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(ix)(A)		
			<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)		<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)		<input type="checkbox"/> 50.73(a)(2)(x)		
10. POWER LEVEL			<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(A)		<input type="checkbox"/> 73.71(a)(4)		
			<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)		<input type="checkbox"/> 50.73(a)(2)(v)(B)		<input type="checkbox"/> 73.71(a)(5)		
			<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)		<input type="checkbox"/> 50.73(a)(2)(v)(C)		<input type="checkbox"/> 73.77(a)(1)		
			<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)		<input type="checkbox"/> 50.73(a)(2)(v)(D)		<input type="checkbox"/> 73.77(a)(2)(i)		
			<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)		<input type="checkbox"/> 50.73(a)(2)(vii)		<input type="checkbox"/> 73.77(a)(2)(ii)		
			<input type="checkbox"/> 50.73(a)(2)(i)(C)		<input type="checkbox"/> OTHER		Specify in Abstract below or in NRC Form 366A			

12. LICENSEE CONTACT FOR THIS LER**LICENSEE CONTACT**

T. Pilo - Acting Manager, Nuclear Regulatory Affairs

TELEPHONE NUMBER (Include Area Code)

(843) 857-1409

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	J1	TBLK	W351	Y					

14. SUPPLEMENTAL REPORT EXPECTED☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO**15. EXPECTED SUBMISSION DATE**

MONTH	DAY	YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

At 1338 hours EDT On 08/24/2016, with the Unit in Mode 1 at 100 percent power, H. B. Robinson Steam Electric Plant, Unit 2 (RNP), experienced an automatic turbine trip followed by an automatic reactor trip during the performance of a visual inspection of the Main Turbine Trip Block. Following the reactor trip, the Auxiliary Feedwater System actuated as expected on low steam generator level. There were no other equipment performance issues.

The cause of this event is attributed to the absence of a standard that would govern risk assessment and control of work activities around trip sensitive equipment. The perceived low significance nature of the risk in conjunction with the evolution comprising only a visual inspection and the procedural silence with respect to data gathering activities in the proximity of trip sensitive equipment, taken together gave rise to the unintended turbine trip, and a subsequent reactor trip.

This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) due to the event resulting in an automatic actuation of the Reactor Protection System (RPS) and Auxiliary Feedwater System (AFW).

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
H. B. Robinson Steam Electric Plant, Unit No. 2	05000- 261	YEAR 2016	SEQUENTIAL NUMBER 004	REV NO. 00

NARRATIVE**BACKGROUND**

This event is reportable under 10 CFR 50.73(a)(2)(iv)(A) due to the event resulting in an automatic actuation of the Reactor Protection System (RPS) [AA] and Auxiliary Feedwater System (AFW) [BA].

The RPS monitors all parameters related to safe operation of the reactor. The system is designed to protect the core against fuel rod cladding damage caused by departure from nucleate boiling (DNB), and to protect the Reactor Coolant System (RCS) [AB] against damage caused by overpressure. The Turbine Trip/Reactor Trip provides overpressure or overtemperature protection for the RCS on a Loss of Load. This trip occurs when 2 out of 3 Auto- Stop Oil Pressure Signals decrease below the setpoint < 45 psig or when both Main Turbine Stop Valves are closed. This trip is active above 40% and automatically blocked below 40%.

On August 24, 2016, at 1338 hours EDT, Event Notification Report #52198 was made to the NRC under 10 CFR 50.72(b)(2)(iv)(B), due to the automatic actuation of the Reactor Protection System, and under 10 CFR 50.72(b)(3)(iv)(A)(B)(6), due to the valid actuation of Auxiliary Feedwater System.

EVENT DESCRIPTION

At the time this condition was identified, RNP Unit 2 was operating in Mode 1 at approximately 100 percent power. No structures, systems or components were out of service at the time of this event that contributed to the event.

At 13:38 hours on 08/24/2016, an automatic turbine trip, and a subsequent automatic reactor trip occurred. Systems Engineering and Operations were performing a visual inspection of the RNP Unit 2 Main Turbine Trip Block. The visual inspection was being performed as a result of a sticking trip block that revealed itself on 8/19/16, during the performance of the Turbine Trip Functional Test (performed Quarterly During Power Operation). As a result of sticking trip block, operations removed the trip block cover and reset the sticking trip mechanism [TBLK] while the turbine trip bypass [JI] was enabled. The removal of the trip block cover was not covered in the Turbine Trip Functional Test. There was no procedural guidance directing the removal of the cover or manipulation of the turbine trip block. Therefore, on 08/24/2016, the act of removing the trip block cover, without the turbine trip bypass enabled, resulted in an automatic turbine trip with a subsequent automatic reactor trip.

This event necessitates a 60-day Licensee Event Report (LER) to the Nuclear Regulatory Commission (NRC), under 10 CFR 50.73(a)(2)(iv)(A) due to the event resulting in an automatic actuation of the Reactor Protection System (RPS) and the Auxiliary Feedwater System (AFW).

CAUSAL FACTORS

An in-depth evaluation of the automatic turbine trip followed by the automatic reactor trip, has concluded the following:

The personnel involved in the removal of the trip block cover had a common understanding of the trip block design and believed the probability causing an automatic turbine trip to be very low to moderate. Therefore, a formal risk assessment was not performed and mitigation capabilities were not integrated into the visual inspection activities. In addition, the unique nature of this particular evolution resulted in the activity receiving inadequate risk review and management oversight. Finally, informal communications conducted amongst station leadership resulted in unclear directions regarding the intended follow up actions which ultimately resulted in inadequate communications to the observers at the work activity level.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA, Privacy and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
H. B. Robinson Steam Electric Plant, Unit No. 2	05000-261	YEAR 2016	SEQUENTIAL NUMBER 004	REV NO. 00

NARRATIVE**CORRECTIVE ACTIONS**

Corrective actions taken to restore compliance with regulations are listed below.

Immediate:

1. Entered event into Corrective Action Program

Corrective Actions to Prevent Recurrence (CAPRs) to address the Root Cause:

A comprehensive and clear standard for trip sensitive equipment will be developed and implemented. Associated training and communication will be developed to reinforce use of risk recognition in the decision making process for non-intrusive evolutions, data gathering activities and visual inspections.

There are no outstanding corrective actions required to restore compliance with NRC requirements; restoration of compliance has been met.

SAFETY ANALYSIS

The reactor was operating at full power during the performance of the visual inspection when an automatic reactor trip occurred. The mitigating equipment (RPS and AFW) functioned as expected and plant shutdown proceeded normally without further challenge. The cause of the plant trip is attributed to the absence of a standard that would govern risk assessment and control of work activities around trip sensitive equipment. The trip logic performed as designed and there were no other equipment performance issues. Therefore, the risk consequence of this event was minimal based on a successful reactor trip with no equipment or operational challenges.

ADDITIONAL INFORMATION

An extensive Operating Experience (OE) review was performed. The search phrases used to conduct the internal OE search were "Turbine trip test", "turbine trip from operator error" and "improper risk". The search phrases used to conduct the external OE search were "Turbine trip test", "turbine trip from operator error" and "improper risk". A search conducted on Institute of Power Operations (INPO) revealed approximately 50 hits.

Conclusion – OE Summary

The list of OEs referenced above could have been used as part of preparation for a pre-job brief of the turbine trip test. Their relevance only applies to the test being performed and most likely would not be searched for when performing a "visual inspection". Also an OE search would not have been conducted because the Auxillary Operators (AOs) and engineer believed this was a low risk task. This event has been performed almost identically at other units.

INPO makes information available to aid plant operators in conducting visual inspections. This further enhances awareness of the potential for trips in trip-sensitive systems. The site will benefit from the lessons learned from this event and the available OE for individuals who are accessing the plant. It will further be reinforced that even low risk and routine work should be treated properly, understood and managed.

Energy Industry Identification System (EIIS) codes for systems and components relevant to this event are identified in the text of this document within brackets [].